

WHAT IS CLAIMED IS:

1. A method of forming a gate electrode for a Fin Field Effect Transistor (FinFET), comprising:

forming a first layer over a fin;

forming an etch stop layer over the first layer;

5 applying an anti-reflective coating to the etch stop layer;

forming a photo-resist layer in a gate pattern over the anti-reflective coating;

etching the anti-reflective coating; and

etching the etch stop layer and the first layer to form the gate electrode in the first layer in a shape corresponding to the gate pattern.

2. The method of claim 1, further comprising:

removing the photo-resist layer subsequent to etching the etch stop layer and the first layer.

3. The method of claim 1, wherein the first layer comprises polysilicon.

4. The method of claim 1, wherein the etch stop layer comprises Ti.

5. The method of claim 1, wherein the etch stop layer comprises TiN.

6. The method of claim 1, wherein the anti-reflective coating comprises SiN.

7. The method of claim 1, wherein etching the anti-reflective coating comprises:
etching the anti-reflective coating using CF₄/Ar.

8. The method of claim 1, wherein etching the etch stop layer and the first layer comprises:
etching the etch stop layer and the first layer using Cl₂/HBr.
9. A method of forming a gate for a Fin Field Effect Transistor (FinFET), comprising:
forming a first layer of material over a fin;
forming a second layer over the first layer, the second layer comprising at least one of Ti
and TiN;
- 5 forming a third layer over the second layer, the third layer comprising an anti-reflective
coating; and
etching the first, second and third layers to form the gate for the FinFET.
10. The method of claim 9, wherein the first layer of material comprises polysilicon.
11. The method of claim 9, wherein the anti-reflective coating comprises SiN.
12. The method of claim 9, wherein etching the third layer comprises:
etching the third layer with a CF₄/Ar etching process.
13. The method of claim 9, wherein etching the first and second layers comprises:
etching the first and second layers with a Cl₂/HBr etching process.
14. The method of claim 9, further comprising:
applying a photo-resist layer in a pattern corresponding to the gate to the third layer prior
to etching the anti-reflective coating.

15. A structure for forming a Fin Field Effect Transistor (FinFET), comprising:

a fin formed on a substrate;

a first layer formed over the fin;

a second layer formed over the first layer, the second layer comprising at least one of Ti

5 and TiN;

a third layer formed over the second layer, the third layer comprising an anti-reflective coating,

wherein the first, second and third layers are etched to form a gate for the FinFET in the first layer.

16. The structure of claim 15, wherein the first layer comprises polysilicon.

17. The structure of claim 15, wherein the third layer comprises SiN.

18. The structure of claim 15, further comprising:

a photo-resist layer formed over the third layer.

19. The structure of claim 15, wherein the third layer is etched with CF₄/Ar.

20. The structure of claim 15, wherein the first and second layers are etched with Cl₂/HBr.